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July 26, 2017

VIA EMAIL

Chair Fiorini and members of the Delta Stewardship Council

Re: Selection of Alternatives for CEQA Analysis Delta Plan Amendments Storage, Conveyance, and the Operation of Both

Dear Chairman Fiorini and members of the Council:

These comments are provided on behalf of Save the California Delta Alliance. As you are aware, we do not believe that the Council's selected Preferred Alternative for amendment of the Delta Plan is consistent with the requirements of the Delta Reform Act ("DRA"). We also believe that the Preferred alternative is not consistent with the judgment and writ of mandate issued in the Delta Stewardship Council Cases.

We understand that the Council, notwithstanding our objections, has made its choice. We are writing to suggest an alternative that we believe meets the requirements of the DRA and the writ. We believe that this alternative should be part of the range of alternatives analyzed for CEQA purposes in order for the resultant Environmental Impact Report to contain a reasonable range of alternatives.

For convenience, we refer to our alternative as the "Reduced Reliance Alternative" ("RRA").

We believe the Preferred Alternative is a policy to increase water supplies, not to make water supplies more reliable or reduce reliance on the Delta. Like the California WaterFix Alternative 4A that is designed to implement, the Preferred Alternative omits meaningful provisions for "protecting, restoring, and enhancing the Delta ecosystem," and omits meaningful provisions for enhancing "the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place." Water Code § 85054—the coequal goals. *See* Letter from Jared Blumenfeld, Regional Director USEPA to David Murillo, Regional Director Bureau of Reclamation, October 30, 2015, p.2 ("The proposed project and the alternatives evaluated in the SDEIS support the water reliability component, but largely defer actions necessary to protect water quality and aquatic life to the future") (commenting on California WaterFix Alternative 4A).

For convenience, we refer to the Preferred Alternative as the "Water Supply Alternative" ("WSA").

We suggest that the RRA be studied by the Council as part of the CEQA process and should be consistent with the following sections I–VIII.

I. The RRA Should Provide That Any Conveyance Project Should Substantially Improve Water Quality In The South And Central Delta And Must Substantially Increase Through-Delta Flows Of Sacramento River Water.

To meet the requirement of restoring and enhancing the Delta ecosystem and enhancing recreational, natural resource, and agricultural values" conveyance improvements must *substantially improve* water quality in the south and central Delta, and must substantially increase through-Delta flows of Sacramento River water, *especially in the summer-fall months and during dry periods.* Recreation, agriculture, and the ecosystem all currently suffer from degraded water quality and inadequate through-Delta flows of Sacramento River water caused by the current configuration of the water system, including upstream diversions. *See* August 26, 2014, Letter from Jared Blumenfeld, USEPA Regional Director to Will Stelle, West Coast Regional Director National Marine Fisheries Service, p. 2 (recognizing "that existing freshwater diversions and significantly diminished seaward flows have played a significant role in precluding the recovery of the Bay Delta ecosystem processes and declining fish populations"). Climate change will exacerbate this situation, making the need for increased through-Delta flows more acute. *Id.* Any conveyance improvements should do at least as much for through-Delta water quality and quantity as they do for water exports. Consistent with the Delta Reform Act's requirement that the Council reduce reliance on the Delta as a source of exported water, decreased exports are consistent with improvements in Delta conveyance and enhanced reliability of the water system. "Reliable" does not mean "increase exports," and it certainly does not mean "restore full contract amounts," which is the stated project purpose of WaterFix.

Increased through-Delta flows should be based on the 2010 Flow Criteria Report, which concluded that 75% of unimpaired flow would be required to protect Delta public trust resources. The Council is required to consider the flow criteria report and is required to take particular care to protect public trust resources. The 2010 Flow Criteria Report is the starting point for determining flows and will understandably be tempered by consideration of competing beneficial uses. However, the DSC Chair's comment that the 2010 Flow Criteria Report is out of date and should not be considered is contrary to the Delta Reform Act and contrary to California public trust doctrine. Water Code § 85086(c)(1) (Flow Criteria Report is "for the purpose of informing planning decisions for the Delta Plan" and BDCP); Water Code § 85023 ("reasonable use and the public trust doctrine shall be the foundation of state water policy and are particularly important and applicable to the Delta").

Increased storage capacity in an integrated storage-conveyance project would allow a "Big Gulp–Little Sip" approach, where water is diverted through any new intakes *only at times of high flow* allowing for a baseline of greater through-Delta flows at most times, and especially during dry periods and the summer-fall months. The WSA is not consistent with the Delta Plan's current exhortation to "A Better System: Storing Floods to Ride Out Droughts (and Give the Delta a Break)." Delta Plan, p. ES-6.

By diverting through any new intakes only at times of high flow and not during the summer–fall months, water supply reliability can be increased while through Delta flows, seaward flows, and in-Delta water quality are also all significantly improved.

II. The RRA Should Provide That Any Isolated Conveyance Should Be Part Of A Storage-Portfolio Project.

In order to achieve I above, any isolated conveyance improvement project should be an integral part of an integrated storage-conveyance-portfolio project. Promises to add future storage to make conveyance improvements effective are meaningless; storage must accompany conveyance as one project. The history of California water infrastructure is a history of broken promises to add future improvements. As four former Delta lead scientists put it: "Simultaneous attention to a portfolio that includes actions like addressing overuse and misuse of water, and improving ground water management and storage, should accompany any necessary water infrastructure adjustments." Luoma, et al., Delta Challenges, p. 4 (Delta Science Program 2014). *See also* August 26, 2014, EPA Letter, p. 3 ("Other reasonable alternatives could be developed by incorporating a suite of measures, including Integrated Water Management, water conservation, levee maintenance, and decreased reliance on the Delta"). Groundwater storage is one of the most promising options. Because they lack mandatory integrated storage, the current WaterFix proposal, and the WSA do not take pressure off the Delta during dry periods. Professor Mount, who spoke before the Council on May 25, 2017, at the behest of tunnel advocates has acknowledged as much. Speaking of the same conveyance facility that is proposed in WaterFix (and endorsed by the WSA) and including the range of operating scenarios currently proposed, Professor Mount concluded that:

> In sum, although there are many regulatory and infrastructure constraints, BDCP does make use of the dual points of diversion to create modest increases in wet year exports and, depending on which export scenario is evaluated, equal to or greater exports in drier years. *BDCP therefore does not achieve the broader goal of reducing pressure on the Delta during dry years by shifting exports to wet years.*

Mount, et al., Panel Review of the Draft Bay Delta Conservation Plan, September 2012 (emphasis original). "Expanding storage, particularly groundwater storage, would have created considerably more flexibility in exports, particularly during wet years." *Id*.

III. The RRA Should Provide That Any Isolated Conveyance Intended To Move Water From Points Upstream To The Export Pumps Should Be Routed Around The Legal Delta To Avoid Devastating Construction Impacts On Delta As Place And Delta Recreation.

To meet the requirement of enhancing "the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place" any isolated conveyance improvements *should not* include below ground conveyance ("tunnels"). Tunnels are more expensive than a canal. The only purpose for tunnels is to allow a direct route through the heart of the Delta, which destroys Delta as place and Delta recreation through at least 11 years of continuous, heavy construction including vibration, blasting, noise from driving at least 8,000 piles, rock drills, helicopter over-flights and thousands of barge trips: "Construction of the Alternative 4A intakes and related water conveyance facilities [tunnels] would result in permanent and long-term (i.e., lasting over 2 years) impacts on well-established recreational opportunities and experiences in the study area because of access, noise, and visual setting disruptions that could result in loss of public use. These impacts would occur year-round." 2016 Bay Delta Conservation Plan/California WaterFix Final EIR/EIS, p. 15-469.

The Meadows Slough, considered to be the queen of Delta recreational anchorages, has been selected as a construction staging area with a concrete batch plant, fuel station, muck dump, and other construction facilities that will ruin this Delta treasure. The classic work on Delta recreation, Hal Schell's *Dawdling on the Delta* describes the Meadows Slough this way:

> If popularity awards were given for Delta anchorages, The Meadows would win hands down. For its fans are legion and its praises are sung in far off places. It has become the mark by which all other Delta Anchorages are measured.

Schell, Hall, *Dawdling on the Delta*, p. 65 (Hal Schell 1986). Exhortations to tunnel constructors to take care are inadequate. It is not possible to run a mega-construction project of this size through the heart of the Delta without destroying the Delta.

A route around the Delta would be the only option that would not destroy the Delta. A canal route to the east (probably to the east of highway 5) would be the most likely possibility. That is the only way to avoid construction impacts and avoid locating concrete batch plants, staging areas, fuel stations, spillways, and other construction infrastructure within prime Delta recreation areas. Tunnels are not consistent with the requirements of the Delta Reform Act.

V. The RRA Should Provide That Any Major New Intake Facilities Should Be Located At Least 2.5 Miles From Designated Legacy Communities And Historic Districts.

Any major new intake facilities should be located at least 2.5 miles from designated Delta legacy communities and historic districts. Construction facilities should be located at least 2.5 miles from prime Delta recreation areas, such as the Meadows Slough. The WSA provision that states that a "project should consider and protect the unique character and historical importance of legacy communities," leaves the door open for the currently proposed location of Waterfix intakes, which places the towns of Hood and Clarksburg in a war zone. The legacy community of Clarksburg is directly across the river from the northernmost intake and will be bombarded with noise, vibration, helicopter over-flights, blasting, and overrun with thousands of construction workers. The legacy community of Hood is inside the construction zone. These towns and their community institutions, and particularly the Clarksburg Marina, will be devastated by un-buffered 102–106 dBA pile-driving for years on end.

DWR proposes to drive 8,040 piles with a total of 8,100,000 pile strikes, each strike at 102–106 dBA. *See* Attachment One (DWR Pile-driving schedule) and Attachment Two (CalTrans pile-driving noise chart). Construction of each intake will take 4 to 5 years and the sequence is staggered, meaning Clarksburg and Hood residents will be exposed to deafening pile-driving for eight years. *See* Attachment Three (DWR Intake Construction Schedule).

Shielding or mitigation of these noise impacts is not possible. *See* Attachment Four (Acoustical Engineering Assessment of Pile Driving Noise Impacts).

These communities cannot survive intake construction. DWR promises to appoint a complaint officer and erect noise barriers—steps that would purport to comply with the WSA and at the same time be ridiculously inadequate to protect these communities. *See*

Attachment Four. The only solution is to consider these communities *when locating* intake sites and locate the intakes elsewhere.

Sound attenuates at 6 dBA per doubling of distance. To attenuate to a loud but survivable 62 dBA, intake construction should be located 12,800 feet (approximately 2.5 miles) from the sensitive receptors of Hood and Clarksburg. This is also a reasonable distance considering all of the other negative impacts of mega-construction.

VI. The RRA Should State That The Delta Is Not A Dump And Provide That Tunnel Muck Dumps ("Spoils Material Stockpiles") Should All Be Located Outside The Delta.

The Delta is not a tunnel muck dump. Dumping 30,000,000 cubic yards of tunnel muck anywhere in the Delta is inconsistent with the Delta Reform Act. The WSA provision stating that the project should "compliment the Delta landscape and minimize aesthetic impacts, including visual impacts of spoils material stockpiles" is inappropriate and inadequate. The RRA should include provisions requiring that tunnel muck be disposed of at appropriate disposal sites outside the legal Delta.

VII. The RRA Should Provide That Through-Delta Conveyance Improvements Should Not Hinder Or Inconvenience Navigation: No Delta Gates.

Conveyance improvement should not hinder or inconvenience navigation, including recreational navigation. Freedom of navigation in recreational boating and the Delta as place are inseparable. Gates, locks, and barriers placed throughout the Delta, including at the head of Georgiana Slough, are inconsistent with the Delta Reform Act. The WSA promotes multiple gates. Bubble curtains, changes in channel geometry, and other state of the art measures designed to steer fish away from hazards and that do not interfere with navigation should be endorsed over gates.

VIII. The RRA Should Include Performance Targets Consistent With Reduced Reliance.

Attachment Five hereto revises the Council's recently adopted performance measures for Delta flow and is proposed as part of the RRA. We do not believe that the adopted performance measures comply with the DRA or the writ. We believe that the long time span and reasonable reductions in exports suggested in the RRA are achievable consistent with improved water system reliability. The WSA metric, which targets only critically dry years (instead of below normal, dry, and critically dry years, as we suggest) is not a reasonable measure of decreased Delta reliance. We believe the other redline suggestions found on Attachment Five are a reasonable alternative and should be included in the CEQA alternatives analysis for the RRA.

IX. Conclusion.

Thank you for considering these comments in formulating a reasonable range of alternatives for amendments to the Delta Plan for storage, conveyance, and the operation of both.

Sincerely,

Michael A. Brodsky

Table 6.1-1. Pile driving for intake construction.

Feature	On-land or In-water	Pile Type/ Sizes	Total Piles	Number of Pile Drivers in Concurrent Use	Piles/ Day	Strikes/ Pile	Strikes/ Day	
Intake Cofferdam – Intakes 2, 3, and 5	In-water	Sheet pile	2,500	4	60	210	12,600	= 525,000
Intake Structure Foundation – Intake 2	In-water	42-inch diameter steel	1,120	4	60	1,500	90,000	= 1,680,000
Intake Structure Foundation – Intake 3	In-water	42-inch diameter steel	850	4	60	1,500	90,000	= 1,275,000
Intake Structure Foundation – Intake 5	In-water	42-inch diameter steel	1,120	4	60	1,500	90,000	= 1,680,000
SR-160 Bridge (Realignment) at Intake	On-land	42-inch diameter steel	150	2	30	1,200	36,000	= 180,000
Control Structure at Intake	On-land	42-inch diameter steel	650	4	60	1,200	72,000	= 780,000
Pumping Plant and Concrete Sedimentation Basins at Intake	On-land	42-inch diameter steel	1,650	4	60	1,200	72,000	= 1,980,000

= 8,100,000

Sheet pile placement for cofferdam installation will be performed by a barge-mounted crane equipped with vibratory and impact pile driving rigs. Foundation pile placement within the cofferdammed area may be done before or after the cofferdammed area is dewatered. If it is done after the area is dewatered and the site is dry, a crane equipped with pile driving rig will be used within the cofferdam. If done before the cofferdam is dewatered, pile driving will be performed by a barge-mounted crane positioned outside of the cofferdam or a crane mounted on a deck on top of the cofferdam.

Construction Overview for North Delta Diversions

The NDD construction timeline is presented in CWF BA Appendix 3.D, *Construction Schedule for the Proposed Action*. The schedule is complex, with work simultaneously occurring at all major facilities for a period of years. During construction, the sequence of activities and duration of each schedule element will depend on the contractor's available means and methods, definition and variation of the design, departure from expected conditions, and perhaps other variable factors.

Each intake has its own construction duration projected to take approximately 4 to 5 years. Early phase tasks to facilitate construction will include mobilization, site work, and establishing concrete batch plants, pug mills, and cement storage areas. During mobilization the contractors will bring materials and equipment to construction sites, set up work areas, locate offices, staging

Intake Structure Foundation – Intake 3	In-water	42-inch diameter steel	850	4	60	1,500	90,000	= 1,275,000
Intake Structure Foundation – Intake 5	In-water	42-inch diameter steel	1,120	4	60	1,500	90,000	= 1,680,000
SR-160 Bridge (Realignment) at Intake	On-land	42-inch diameter steel	150	2	30	1,200	36,000	= 180,000
Control Structure at Intake	On-land	42-inch diameter steel	650	4	60	1,200	72,000	= 780,000
Pumping Plant and Concrete Sedimentation Basins at Intake	On-land	42-inch diameter steel	1,650	4	60	1,200	72,000	= 1,980,000

Sheet pile placement for cofferdam installation will be performed by a barge-mounted crane

Table 5. Construction Noise (L_{eq} at 50 Feet)

(Colors indicate relative sound level: red = extreme, orange = very high; yellow = high; green = moderate; blue = low; purple = very low; mauve = background. Asterisks show impact noise sources.)

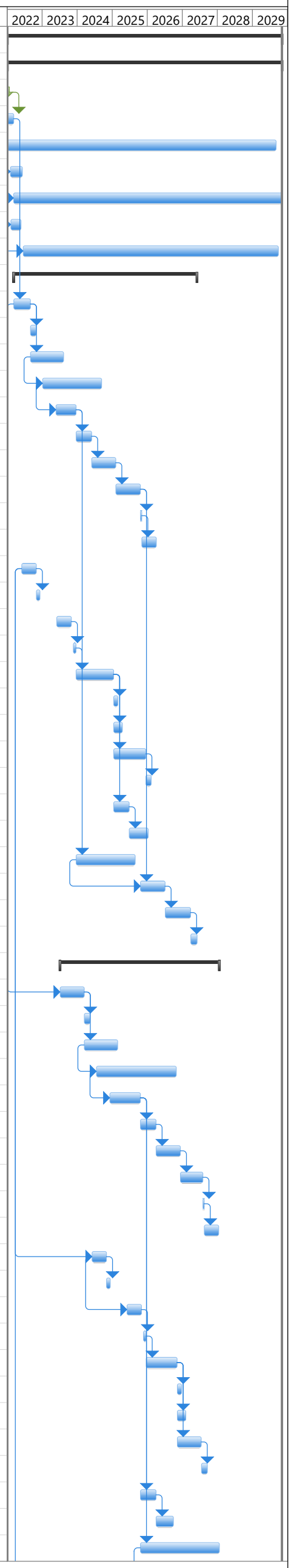
	Noise (dBA)		
	Low	High	Impact[a]
Explosives	94	162	*
Rock Blast	112	112	*
Pneumatic Tools, Jackhammers & Pile Driver	101	110	*
Track Hoe	91	106	*
Impact Pile Driver	96	106	*
Guardrail Installation and Pile Driving	95	105	*
Truck Horn	104	104	*
Pile Driving	74	103	*
Rock Drill and Diesel Generator	80	99	
Rock Drill	85	98	
Dump Truck	82	98	
Rock Drills and Jackhammers	82	97	*
Pneumatic Wrenches, Rock Drills	86	97	*
Vibratory (Sonic) Pile Driver	95	96	*
Diesel Truck	85	96	
Pneumatic Chipper	91	95	*
Hydromulcher	87	94	
Clam Shovel	93	93	
Slurry Machine	82	91	
Pneumatic Riveter	91	91	*
Circular Saw (hand held)	91	91	
Mounted Impact Hammer Hoe-Ram	85	90	*
Concrete Saw	90	90	
Compressor	80	90	
Scraper	85	89	
Paver	80	89	
Large Truck	84	89	
Jackhammer	74	89	*
Drill Rig	85	88	
Dozer	84	88	
Crane	85	88	
Pumps, Generators, Compressors	81	87	
Front-end Loader	80	87	
Large Diesel Engine	86	86	
Gradall	85	86	
Chain saws	75	86	
Road Grader	83	85	

Attachment Three

Appendix 3.D, Construction Schedule for the Proposed Action

North Delta Diversion Construction Schedule

ID	Task Name	Duration	Start	Finish
1	**Intakes**	**2046 days?**	**Mon 1/3/22**	**Mon 11/5/29**
2	**General task**	**2046 days**	**Mon 1/3/22**	**Mon 11/5/29**
3	Intakes NTP	0 days	Mon 1/3/22	Mon 1/3/22
4	Contractor Mobilization	48 days	Mon 1/3/22	Wed 3/9/22
5	Contractor Staff	2000 days	Tue 1/4/22	Mon 9/3/29
6	Erect Temp contractor Facilities	90 days	Wed 2/2/22	Tue 6/7/22
7	Operate Temp Facilities	2000 days	Tue 3/8/22	Mon 11/5/29
8	Erect Batch Plant	76 days	Tue 2/8/22	Tue 5/24/22
9	Operate Batch Plant	1900 days	Thu 6/16/22	Wed 9/26/29
10	**Intake 5**	**1365 days**	**Thu 3/10/22**	**Wed 6/2/27**
11	Initial Site Work	124 days	Thu 3/10/22	Tue 8/30/22
12	Substation & Electrical Distribution	43 days	Wed 8/31/22	Fri 10/28/22
13	Construct Slurry Wall (Land side)	248 days	Wed 8/31/22	Fri 8/11/23
14	Construct Well Point dewatering	440 days	Wed 1/4/23	Tue 9/10/24
15	Remove peat and excavate subgrade	150 days	Wed 5/24/23	Tue 12/19/23
16	Improve soil	116 days	Wed 12/20/23	Wed 5/29/24
17	Consrut box conduits under new road	180 days	Thu 5/30/24	Wed 2/5/25
18	Construct new highway 160 slope	183 days	Thu 2/6/25	Mon 10/20/25
19	reroute traffic	10 days	Tue 10/21/25	Mon 11/3/25
20	Construct Diaphram Wall	109 days	Tue 11/4/25	Fri 4/3/26
21	Construct sheet pile coffer dam (in water window)	109 days	Wed 6/1/22	Mon 10/31/22
22	excavate/ dewater cofferdam	27 days	Tue 11/1/22	Wed 12/7/22
23	Drilled casing (in water window)	109 days	Thu 6/1/23	Tue 10/31/23
24	Pour tremmie concrete at intake	20 days	Tue 11/21/23	Mon 12/18/23
25	Construct intake structure	280 days	Tue 12/19/23	Mon 1/13/25
26	Intake 5:Gates	32 days	Tue 1/14/25	Wed 2/26/25
27	MEP	65 days	Tue 1/14/25	Mon 4/14/25
28	Fish Screens	240 days	Tue 1/14/25	Mon 12/15/25
29	Finish Out	40 days	Tue 12/16/25	Mon 2/9/26
30	Construct soil improvements	116 days	Tue 1/14/25	Tue 6/24/25
31	Construct remaining box conduits	142 days	Wed 6/25/25	Thu 1/8/26
32	Install dewatering systmem on land side	440 days	Wed 12/20/23	Tue 8/26/25
33	Construct Sediment basin soil improvements on	184 days	Tue 10/21/25	Fri 7/3/26
34	Construct landside facilities	190 days	Mon 7/6/26	Fri 3/26/27
35	Finish paving	48 days	Mon 3/29/27	Wed 6/2/27
36	**Intake 3**	**1187 days**	**Thu 7/6/23**	**Fri 1/21/28**
37	Initial Site Work	180 days	Thu 7/6/23	Wed 3/13/24
38	Substation & Electrical Distribution	43 days	Thu 3/14/24	Mon 5/13/24
39	Construct Slurry Wall (Land side)	248 days	Thu 3/14/24	Mon 2/24/25
40	Construct Well Point dewatering	596 days	Thu 7/18/24	Thu 10/29/26
41	Remove peat and excavate subgrade	228 days	Thu 12/5/24	Mon 10/20/25
42	Improve soil	116 days	Tue 10/21/25	Tue 3/31/26
43	Consrut box conduits under new road	182 days	Wed 4/1/26	Thu 12/10/26
44	Construct new highway 160 slope	167 days	Fri 12/11/26	Mon 8/2/27
45	reroute traffic	10 days	Tue 8/3/27	Mon 8/16/27
46	Construct Diaphram Wall	109 days	Tue 8/17/27	Fri 1/14/28
47	Construct sheet pile coffer dam (in water window)	109 days	Mon 6/3/24	Thu 10/31/24
48	excavate/ dewater cofferdam	27 days	Fri 11/1/24	Mon 12/9/24
49	Drilled casing (in water window)	110 days	Mon 6/2/25	Fri 10/31/25
50	Pour tremmie concrete at intake	20 days	Fri 11/21/25	Thu 12/18/25
51	Construct intake structure	231 days	Fri 12/19/25	Fri 11/6/26
52	Gates	32 days	Mon 11/9/26	Tue 12/22/26
53	MEP	65 days	Mon 11/9/26	Fri 2/5/27
54	Fish Screens	180 days	Mon 11/9/26	Fri 7/16/27
55	Finish Out	45 days	Mon 7/19/27	Fri 9/17/27
56	Construct soil improvements	116 days	Tue 10/21/25	Tue 3/31/26
57	Construct remaining box conduits	129 days	Wed 4/1/26	Mon 9/28/26
58	Install dewatering systmem on land side	589 days	Tue 10/21/25	Fri 1/21/28



Project: Intake construction sch
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Task		Inactive Summary		External Tasks	
Split		Manual Task		External Milestone	
Milestone		Duration-only		Deadline	
Summary		Manual Summary Rollup		Progress	
Project Summary		Manual Summary		Manual Progress	
Inactive Task		Start-only			
Inactive Milestone		Finish-only			

North Delta Diversion Construction Schedule

ID	Task Name	Duration	Start	Finish
59	Construct Sediment basin soil improvements on	152 days	Tue 6/30/26	Wed 1/27/27
60	Construct landside facilities	181 days	Thu 1/28/27	Thu 10/7/27
61	Finish paving	48 days	Fri 10/8/27	Tue 12/14/27
62	**Intake 2**	**1211 days?**	**Wed 12/18/24**	**Wed 8/8/29**
63	Initial Site Work	180 days	Wed 12/18/24	Tue 8/26/25
64	Substation & Electrical Distribution	43 days	Wed 8/27/25	Fri 10/24/25
65	Construct Slurry Wall (Land side)	180 days	Wed 8/27/25	Tue 5/5/26
66	Construct Well Point dewatering	440 days	Wed 12/31/25	Tue 9/7/27
67	Remove peat and excavate subgrade	180 days	Wed 5/20/26	Tue 1/26/27
68	Improve soil	116 days	Wed 1/27/27	Wed 7/7/27
69	Consrut box conduits under new road	184 days	Thu 7/8/27	Tue 3/21/28
70	Construct new highway 160 slope	180 days	Wed 3/22/28	Tue 11/28/28
71	reroute traffic	10 days	Wed 11/29/28	Tue 12/12/28
72	Construct Diaphram Wall	109 days	Wed 12/13/28	Mon 5/14/29
73	Construct sheet pile coffer dam (in water window)	110 days	Mon 6/2/25	Fri 10/31/25
74	excavate/ dewater cofferdam	27 days	Mon 11/3/25	Tue 12/9/25
75	Drilled casing piles (in water window)	130 days	Mon 5/4/26	Fri 10/30/26
76	Pour tremmie concrete at intake	20 days	Fri 11/20/26	Thu 12/17/26
77	Construct intake structure	280 days	Fri 12/18/26	Thu 1/13/28
78	Gates	32 days	Fri 1/14/28	Mon 2/28/28
79	MEP	65 days	Fri 1/14/28	Thu 4/13/28
80	Fish Screens	240 days	Fri 1/14/28	Thu 12/14/28
81	Finish Out	45 days	Fri 12/15/28	Thu 2/15/29
82	Construct soil improvements	116 days	Wed 1/27/27	Wed 7/7/27
83	Construct remaining box conduits	142 days	Thu 7/8/27	Fri 1/21/28
84	Install dewatering systmem on land side	440 days	Wed 1/27/27	Tue 10/3/28
85	Construct Sediment basin soil improvements on	213 days	Wed 10/6/27	Fri 7/28/28
86	Construct landside facilities	220 days	Mon 7/31/28	Fri 6/1/29
87	Finish paving	48 days	Mon 6/4/29	Wed 8/8/29
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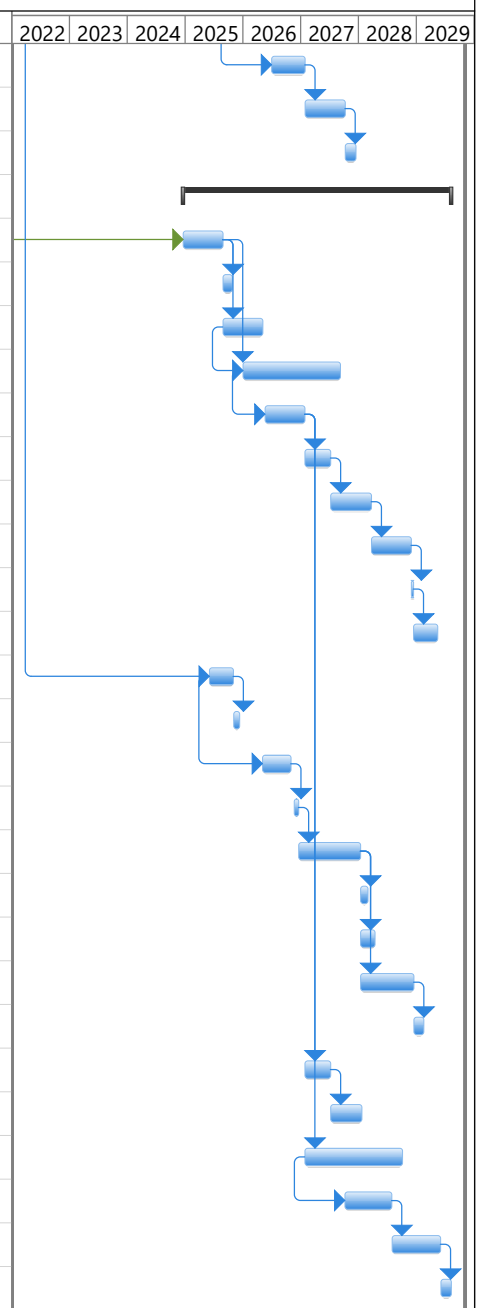

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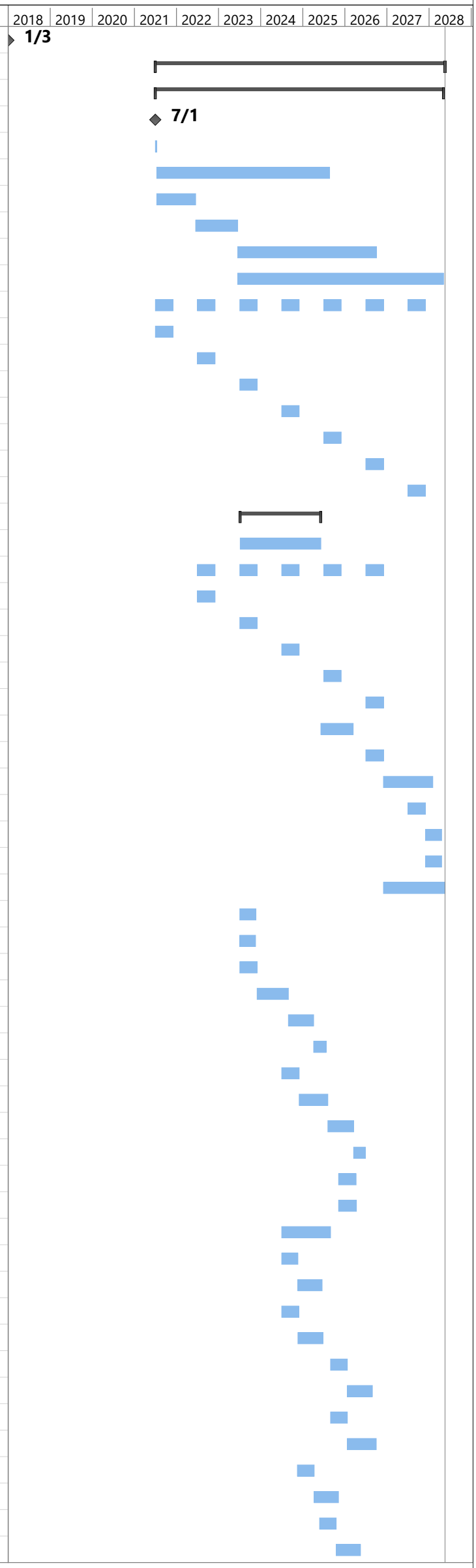
Task		Inactive Summary		External Tasks	
Split		Manual Task		External Milestone	
Milestone		Duration-only		Deadline	
Summary		Manual Summary Rollup		Progress	
Project Summary		Manual Summary		Manual Progress	
Inactive Task		Start-only			
Inactive Milestone		Finish-only			

Clifton Court Construction Schedule

ID	Task Name	Duration	Start	Finish
1	Start of Construction Phase	0 days	1/3/18	1/3/18
2	**Clifton Court Construction**	**1796 days**	**7/1/21**	**5/18/28**
3	**General**	**1787 days**	**7/1/21**	**5/5/28**
4	Clifton Court NTP	0 days	7/1/21	7/1/21
5	Mobilization	8 days	7/1/21	7/12/21
6	Contract Mngt., Supervision, Admin.	1072 days	7/13/21	8/20/25
7	Access Construction	241 days	7/13/21	6/14/22
8	Temporary Facilities	261 days	6/15/22	6/14/23
9	Batch Plant	861 days	6/15/23	10/1/26
10	Temp Facility Operations	1277 days	6/15/23	5/5/28
11	**In Water Work Window**	**1674 days**	**7/1/21**	**11/30/27**
12	In Water Work Window 1	109 days	7/1/21	11/30/21
13	In Water Work Window 2	109 days	7/1/22	11/30/22
14	In Water Work Window 3	109 days	7/3/23	11/30/23
15	In Water Work Window 4	109 days	7/1/24	11/28/24
16	In Water Work Window 5	109 days	7/1/25	11/28/25
17	In Water Work Window 6	109 days	7/1/26	11/30/26
18	In Water Work Window 7	109 days	7/1/27	11/30/27
19	**Embankments**	**500 days**	**7/7/23**	**6/5/25**
20	SCCF Dike Southwest and Southeast	500 days	7/7/23	6/5/25
21	**SCCF Dredge Phase**	**1535 days**	**7/1/22**	**5/18/28**
22	SCCF Dredge Phase 1	109 days	7/1/22	11/30/22
23	SCCF Dredge Phase 2	109 days	7/3/23	11/30/23
24	SCCF Dredge Phase 3	109 days	7/1/24	11/28/24
25	SCCF Dredge Phase 4	109 days	7/1/25	11/28/25
26	SCCF Dredge Phase 5	109 days	7/1/26	11/30/26
27	SCCF Remove existing southern dike	200 days	6/6/25	3/12/26
28	Install sheet piles for partition dike	109 days	7/1/26	11/30/26
29	CCF Partition Dike	306 days	12/1/26	2/1/28
30	SCCF Install sheet piles for East and West Dikes	109 days	7/1/27	11/30/27
31	SCCF Dike - Gate to Dike	100 days	12/1/27	4/18/28
32	SCCF Dike West side	100 days	12/1/27	4/18/28
33	NCCF Dike - West, North and East	383 days	12/1/26	5/18/28
34	Relocate Byron Highway	101 days	7/3/23	11/20/23
35	Relocate Railroad	99 days	7/3/23	11/16/23
36	NCCF Install siphon sheet piles	109 days	7/3/23	11/30/23
37	NCCF Siphon (Phase 1) Excavate	193 days	12/1/23	8/27/24
38	NCCF Siphon (Phase 1) Concrete	157 days	8/28/24	4/3/25
39	NCCF Siphon (Phase 1) Backfill	77 days	4/4/25	7/21/25
40	NCCF Siphon (Phase 2) sheet piles	109 days	7/1/24	11/28/24
41	NCCF Siphon (Phase 2) Excavate	177 days	11/29/24	8/4/25
42	NCCF Siphon (Phase 2) Concrete	160 days	8/5/25	3/16/26
43	NCCF Siphon (Phase 2) Backfill	74 days	3/17/26	6/26/26
44	Byron Highway Bridge over Canal	108 days	11/7/25	4/7/26
45	SP Railrod Bridge over Canal	110 days	11/7/25	4/9/26
46	NCCF Outlet Canal	304 days	7/1/24	8/28/25
47	Control Structure # 1 Excavate	101 days	7/1/24	11/18/24
48	Control Structure # 1 Concrete	150 days	11/19/24	6/16/25
49	Control Structure # 2 Excavate	107 days	7/1/24	11/26/24
50	Control Structure # 2 Concrete	155 days	11/19/24	6/23/25
51	Control Structure # 3 Excavate	104 days	8/29/25	1/21/26
52	Control Structure # 3 Concrete	155 days	1/22/26	8/26/26
53	Control Structure # 4 Excavate	104 days	8/29/25	1/21/26
54	Control Structure # 4 Concrete	178 days	1/22/26	9/28/26
55	Old River Structure Excavate	104 days	11/14/24	4/8/25
56	Old River Structure Concrete	151 days	4/9/25	11/5/25
57	New Spillway Excavate	104 days	5/26/25	10/16/25
58	New Spillway Concrete	151 days	10/17/25	5/15/26

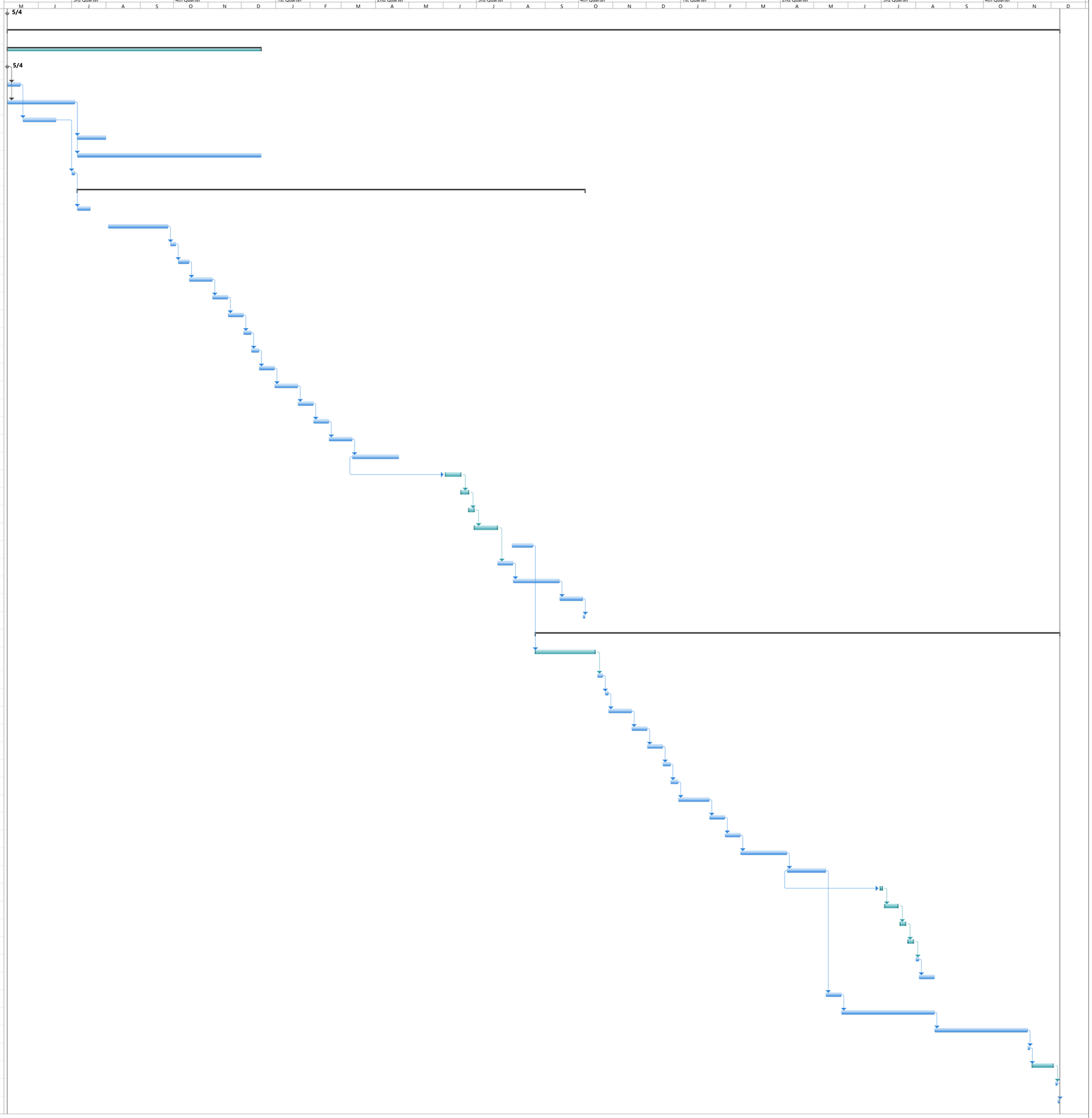


Project: 20160706 Clifton Court
Date: 7/7/16

Task		Inactive Summary		External Tasks	
Split		Manual Task		External Milestone	
Milestone		Duration-only		Deadline	
Summary		Manual Summary Rollup		Progress	
Project Summary		Manual Summary		Manual Progress	
Inactive Task		Start-only			
Inactive Milestone		Finish-only			

California Water Fix - Operable Gate Construction Schedule

ID	Task Name	Duration	Start	Finish	Predecessors
1	Start of Construction Phase	0 days	Mon 5/4/20	Mon 5/4/20	
2	**Head of Old River Flow Control Structure**	**679 days**	**Mon 5/4/20**	**Thu 12/8/22**	
3	**General**	**165 days**	**Mon 5/4/20**	**Fri 12/18/20**	
4	Notice to Proceed	0 days	Mon 5/4/20	Mon 5/4/20	
5	Mobilization	10 days	Mon 5/4/20	Fri 5/15/20	4
6	Submittals	45 days	Mon 5/4/20	Fri 7/3/20	4
7	Install temporary facilities	22 days	Mon 5/18/20	Tue 6/16/20	5
8	Order/Frabricate H-piles and Sheetpiles	20 days	Mon 7/6/20	Fri 7/31/20	6
9	Order/Frabricate Radial/Miter Gates/Flashboards	120 days	Mon 7/6/20	Fri 12/18/20	6
10	Construction Surveys	3 days	Wed 7/1/20	Fri 7/3/20	7FS+10 days
11	**Boat Lock**	**328 days**	**Mon 7/6/20**	**Wed 10/6/21**	
12	Clearing & Grubbing	10 days	Mon 7/6/20	Fri 7/17/20	10
13	Construct sheetpile cofferdam for boatlock construction (in-water work)	40 days	Mon 8/3/20	Fri 9/25/20	
14	Dewater	5 days	Mon 9/28/20	Fri 10/2/20	13
15	Install construction dewatering system	8 days	Mon 10/5/20	Wed 10/14/20	14
16	Structural excavation for Boatlock	15 days	Thu 10/15/20	Wed 11/4/20	15
17	Drive H-Piles	10 days	Thu 11/5/20	Wed 11/18/20	16
18	Place/cure tremie concrete	10 days	Thu 11/19/20	Wed 12/2/20	17
19	Concrete Formwork for Boatlock floor slab	5 days	Thu 12/3/20	Wed 12/9/20	18
20	Place reinforcing steel for floor slab	5 days	Thu 12/10/20	Wed 12/16/20	19
21	Install electrical conduit and embedded appurtenances	10 days	Thu 12/17/20	Wed 12/30/20	20
22	1st placement of concrete for Boatlock floor slab (1450 CY)	15 days	Thu 12/31/20	Wed 1/20/21	21
23	Concrete Formwork for Boatlock walls	10 days	Thu 1/21/21	Wed 2/3/21	22
24	Place reinforcing steel for Boatlock walls	10 days	Thu 2/4/21	Wed 2/17/21	23
25	Install Filling/Emptying System for Boat Lock	15 days	Thu 2/18/21	Wed 3/10/21	24
26	2nd placement of concrete for Boatlock walls (1700 CY)	30 days	Thu 3/11/21	Wed 4/21/21	25
27	Install Miter Gates	10 days	Thu 6/3/21	Wed 6/16/21	26SS+60 days
28	Test Miter Gates	5 days	Thu 6/17/21	Wed 6/23/21	27
29	Remove dewatering pumps/flood cofferdam	3 days	Thu 6/24/21	Mon 6/28/21	28
30	Drive guidewall and fender piles for Boat Lock	15 days	Tue 6/29/21	Mon 7/19/21	29
31	Remove sheetpiles (in water work)	15 days	Mon 8/2/21	Fri 8/20/21	
32	Place structure backfill for north levee storage compound	10 days	Tue 7/20/21	Mon 8/2/21	30
33	Construct Boat Lock Operator Building	30 days	Tue 8/3/21	Mon 9/13/21	32
34	Place riprap on levee embankment	15 days	Tue 9/14/21	Mon 10/4/21	33
35	Seeding	2 days	Tue 10/5/21	Wed 10/6/21	34
36	**Control Structure**	**339 days**	**Mon 8/23/21**	**Thu 12/8/22**	
37	Construct sheetpile cofferdam for Control Structure construction (in-water work)	40 days	Mon 8/23/21	Fri 10/15/21	31
38	Dewater	5 days	Mon 10/18/21	Fri 10/22/21	37
39	Install construction dewatering system	3 days	Mon 10/25/21	Wed 10/27/21	38
40	Structural excavation for Control Structure	15 days	Thu 10/28/21	Wed 11/17/21	39
41	Drive H-Piles	10 days	Thu 11/18/21	Wed 12/1/21	40
42	Place/cure tremie concrete	10 days	Thu 12/2/21	Wed 12/15/21	41
43	Concrete Formwork for Control Structure floor slab	5 days	Thu 12/16/21	Wed 12/22/21	42
44	Place reinforcing steel for floor slab	5 days	Thu 12/23/21	Wed 12/29/21	43
45	1st placement of concrete for Control Structure floor slab (1800 CY)	20 days	Thu 12/30/21	Wed 1/26/22	44
46	Concrete Formwork for Control Structure walls	10 days	Thu 1/27/22	Wed 2/9/22	45
47	Place reinforcing steel for Control Structure walls	10 days	Thu 2/10/22	Wed 2/23/22	46
48	2nd placement of concrete for Control Structure walls (1900 CY)	30 days	Thu 2/24/22	Wed 4/6/22	47
49	3rd placement of concrete for Control Structure bridge (200 CY)	25 days	Thu 4/7/22	Wed 5/11/22	48
50	Place flashboards in control structure	2 days	Thu 6/30/22	Fri 7/1/22	49SS+60 days
51	Install Radial Gates	10 days	Mon 7/4/22	Fri 7/15/22	50
52	Post-tension trunnion anchorages	5 days	Mon 7/18/22	Fri 7/22/22	51
53	Test Gates	5 days	Mon 7/25/22	Fri 7/29/22	52
54	Remove dewatering pumps/flood cofferdam	3 days	Mon 8/1/22	Wed 8/3/22	53
55	Remove sheetpiles (in water work)	10 days	Thu 8/4/22	Wed 8/17/22	54
56	Place structure backfill for Control Bldg/storage compound	10 days	Thu 5/12/22	Wed 5/25/22	49
57	Construct Control Buildings	60 days	Thu 5/26/22	Wed 8/17/22	56
58	Install control systems, utilities, communications tower, LPG tank	60 days	Thu 8/18/22	Wed 11/9/22	57
59	Place aggregate base on roads and storage areas	2 days	Thu 11/10/22	Fri 11/11/22	58
60	Place riprap on levee embankment	15 days	Mon 11/14/22	Fri 12/2/22	59
61	Seeding	2 days	Mon 12/5/22	Tue 12/6/22	60
62	Complete roadwork	2 days	Wed 12/7/22	Thu 12/8/22	61

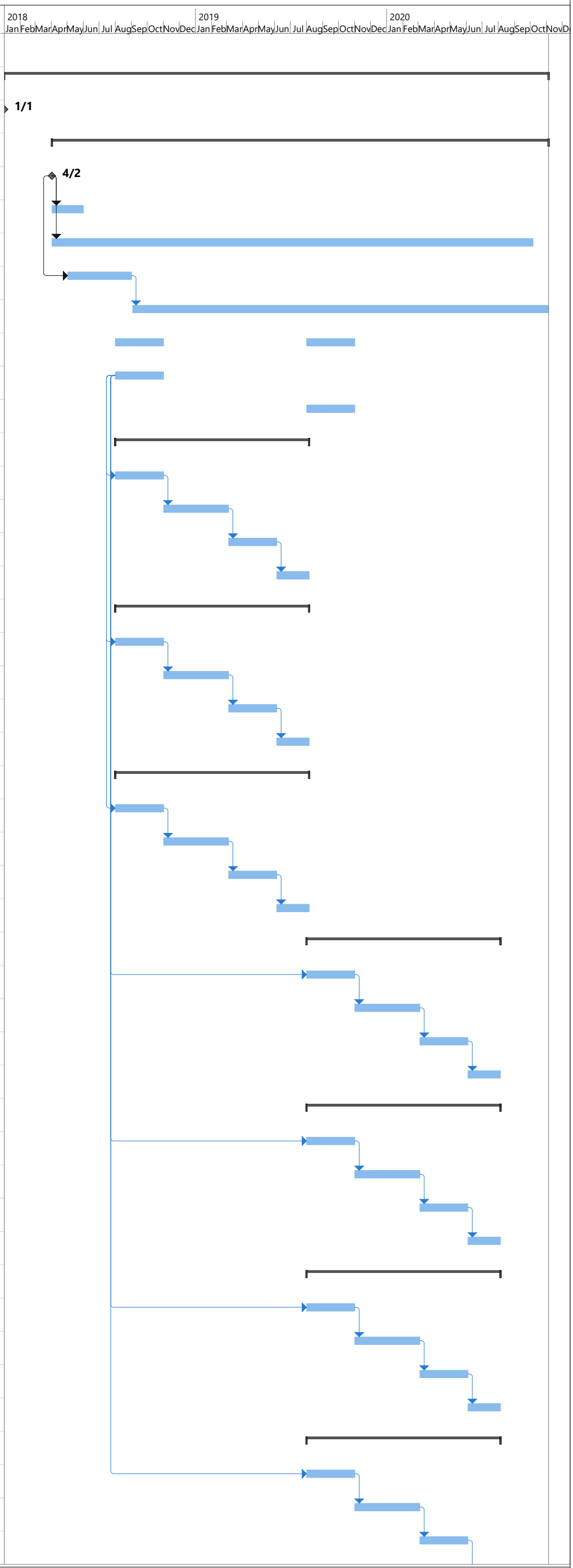


Project: Barrier Design & Const
Date: Mon 7/25/16

Task, Split, Milestone, Summary, Project Summary, Inactive Task, Inactive Milestone, Inactive Summary, Manual Task, Duration-only, Manual Summary Rollup, Manual Summary, Start-only, Finish-only, External Tasks, External Milestone, Deadline, Progress, Manual Progress

Barge Landings Construction Schedule

ID	ID	Task Name	Duration	Start	Finish
1	1				
2	**2**	**Barge Landings**	**743 days**	**1/1/18**	**11/4/20**
3	3	**Construction Phase Start**	0 days	1/1/18	1/1/18
4	**4**	**General Tasks**	**678 days**	**4/2/18**	**11/4/20**
5	5	Barge Landings NTP	0 days	4/2/18	4/2/18
6	6	Contractor mobilzation	44 days	4/2/18	5/31/18
7	7	Contractor staff	656 days	4/2/18	10/5/20
8	8	Erect temp contracor facilities	88 days	5/2/18	8/31/18
9	9	Operate temp facilities	568 days	9/3/18	11/4/20
10	**10**	**In-Water Work Window for Barge Landings**	**327 days**	**8/1/18**	**10/31/19**
11	11	In-Water Work Window for Barge Landings 1	66 days	8/1/18	10/31/18
12	12	In-Water Work Window for Barge Landings 2	66 days	8/1/19	10/31/19
13	**13**	**Barge Landing near Clifton Court**	**264 days**	**8/1/18**	**8/5/19**
14	14	Install piles (in-water work)	66 days	8/1/18	10/31/18
15	15	Install support structure	88 days	11/1/18	3/4/19
16	16	Cast barge deck	66 days	3/5/19	6/4/19
17	17	Finish	44 days	6/5/19	8/5/19
18	**18**	**Barge Landing near Bouldin Island**	**264 days**	**8/1/18**	**8/5/19**
19	19	Install piles (in-water work)	66 days	8/1/18	10/31/18
20	20	Install support structure	88 days	11/1/18	3/4/19
21	21	Cast barge deck	66 days	3/5/19	6/4/19
22	22	Finish	44 days	6/5/19	8/5/19
23	**23**	**Barge Landing near Intermediate Forebay**	**264 days**	**8/1/18**	**8/5/19**
24	24	Install piles (in-water work)	66 days	8/1/18	10/31/18
25	25	Install support structure	88 days	11/1/18	3/4/19
26	26	Cast barge deck	66 days	3/5/19	6/4/19
27	27	Finish	44 days	6/5/19	8/5/19
28	**28**	**Barge Landing near Bacon Island**	**264 days**	**8/1/19**	**8/4/20**
29	29	Install piles (in-water work)	66 days	8/1/19	10/31/19
30	30	Install support structure	88 days	11/1/19	3/3/20
31	31	Cast barge deck	66 days	3/4/20	6/3/20
32	32	Finish	44 days	6/4/20	8/4/20
33	**33**	**Barge Landing near Venice Island**	**264 days**	**8/1/19**	**8/4/20**
34	34	Install piles (in-water work)	66 days	8/1/19	10/31/19
35	35	Install support structure	88 days	11/1/19	3/3/20
36	36	Cast barge deck	66 days	3/4/20	6/3/20
37	37	Finish	44 days	6/4/20	8/4/20
38	**38**	**Barge Landing near Mandeville Island**	**264 days**	**8/1/19**	**8/4/20**
39	39	Install piles (in-water work)	66 days	8/1/19	10/31/19
40	40	Install support structure	88 days	11/1/19	3/3/20
41	41	Cast barge deck	66 days	3/4/20	6/3/20
42	42	Finish	44 days	6/4/20	8/4/20
43	**43**	**Barge Landing near Victoria Island**	**264 days**	**8/1/19**	**8/4/20**
44	44	Install piles (in-water work)	66 days	8/1/19	10/31/19
45	45	Install support structure	88 days	11/1/19	3/3/20
46	46	Cast barge deck	66 days	3/4/20	6/3/20

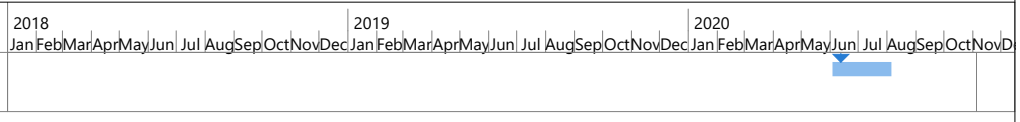


Project: 20160705 Barge Landin
Date: 7/7/16

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

Barge Landings Construction Schedule

ID	ID	Task Name	Duration	Start	Finish
47	47	Finish	44 days	6/4/20	8/4/20



Project: 20160705 Barge Landin
Date: 7/7/16

Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

Attachment Four

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12 July 2017

Michael Brodsky
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201 Esplanade, Upper Suite
Capitola, CA 95010
Email: michael@brodskylaw.net

Subject: **Bay Delta Conservation Plan/California WaterFix**
FEIR/S Review Comments
Salter Project: 17-0416

Dear Michael:

As requested, we reviewed Chapter 23 Noise of the Final Environmental Impact Report/Statement (FEIR/S) for the proposed Bay Delta Conservation Plan (BDCP)/California WaterFix Project. It would consist of new water intake, conveyance, and associated facilities to transport water from the Sacramento River. This letter summarizes our review and comments.

EXECUTIVE SUMMARY

In our opinion, the FEIR/S does not sufficiently address potential noise impacts. Our comments focus on the following issues:

1. The noise impact significance analysis virtually ignores expected increases to ambient noise levels at neighboring sensitive land-uses. As such, CEQA Guidelines and the thresholds of significance are also ignored. Therefore, the FEIR/S is incomplete.

2. No ambient noise measurements were performed to study the baseline noise environment. For a project of this scale, it is our opinion that conducting no measurements and relying only on broad estimates of existing environmental conditions is below the standard of care for such an impact analysis with nearby noise-sensitive receivers.

3. Construction noise levels are likely underestimated in some areas, by as much as 10 dB to 15 dB or more, as the analysis assumed excess attenuation rates for sound propagation from the construction sites and failed to account for the potential variation and cumulative effects of several pile drivers operating concurrently.

4. The FEIR/S does not include sufficient evidence to demonstrate that adequate noise reduction can be feasibly achieved by the proposed mitigation measures (see MM NOI-1a), particularly noise barrier walls along the River that would have to shield tall equipment, such as pile drivers. If the proposed mitigation is not feasible, appropriate mitigation should be identified or the impact should be concluded as significant/adverse.

5. Construction noise is expected to significantly interfere with the activities at certain recreational facilities or businesses available for community enjoyment, such as the Clarksburg Marina and the Hood Supply Company (restaurant).

INTRODUCTION

The proposed BDCP/Waterfix Project would include the construction of several water intake facilities along the Sacramento River along with conveyance and associated facilities. The primary and most significant sources of construction noise would be the pile/pier installation and related excavation, blasting, and trucking activities along with the muck haul activities associated with the tunnel boring. The surrounding area is largely rural and agricultural land, but there are several noise sensitive land-uses in the area, including residences, communities, and recreational areas/facilities.

COMMENTS ON THE FEIR/S

Potential Increases in Ambient Noise Levels are Virtually Ignored

CEQA, via Appendix G, directs a study of environmental impact to evaluate whether a project could result in an "increase in ambient noise levels in the project vicinity above levels existing without the project." This direction is incorporated into the FEIR/S (see Page 23-26). However, the FEIR/S virtually ignored this area of required analysis with respect to construction noise sources. Therefore, the noise impact analysis is inadequate. The concern of construction noise impacts is particularly important since these activities would occur over such a long period of time, several years.

In Section 23.3.3, significance thresholds for increases in ambient noise are offered as a 5 dB increase in the community noise levels, but only if noise would increase beyond a 60 dBA L_{eq} daytime threshold (or 50 dBA L_{eq} at night). Thus, the FEIR/S implies that any noise level increase up to 60 dBA would not be significant. However, this conflicts with 1) common practice and 2) research offered in the FEIR/S.

1) On Page 23.23 the FEIR/S states that, "To assess increases in noise levels due to construction of the project, a baseline of 40 dBA is used to describe the existing ambient noise level in the study area." However, the FEIR/S fails to conclude that allowing ambient noise levels to increase from 40 dBA to 60 dBA would be a significant increase. A 20-dB noise increase would be equivalent to a four-fold increase in perceived loudness. This would be a significant increase that should be appropriately addressed in the EIR.

2) In Section 23.3.2 Determination of Effects, the FEIR/S references research by Schultz (1978) stating that, "increases in ambient noise levels that are readily perceptible and sustained over long periods of time have been shown to result in a higher probability of adverse community reaction when ambient noise levels increase by 10 to 20 dB. An increase of this magnitude has been shown to result in a community reaction characterized by "several threats of legal action" and "vigorous action" according to social surveys and case studies of community reaction to noise." However, in determining the project's noise impact, this research is ignored. As stated above, the FEIR/S fails to identify potential noise increases of 20 dB as significant. No mitigation or discussion is offered to address the potential ambient noise increase from 40 dBA to 60 dBA.

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No Ambient Noise Measurements were Conducted to Study the Existing Environment

As acknowledged in the FEIR/S, no ambient noise measurements were performed at any noise sensitive receptors in the study area, such as neighboring residential or recreational areas. Such information is needed for the appropriate evaluation of project noise impact on the surrounding community. Relying solely on broad estimates of community noise (see Pages 23-8 through 23-12) is not sufficient in this case. In particular, measurements at representative sensitive receptor locations are important to account for effects of distance and terrain from major noise source in the area (e.g., local highways). Daytime and, particularly, nighttime noise levels may not equal the broad assumptions made. Thus, the evaluation of potential noise impact could be understated. Without these data, the required CEQA analysis cannot be appropriately performed. Furthermore, in our experience, such a noise survey is common practice and would not be overly burdensome for a lead agency.

Construction Noise Levels are likely Underestimated in Some Areas

The FEIR/S states that predicted noise levels from construction activities were calculated using the Federal Transit Administration method found in the Transit Noise and Vibration Impact Assessment document (FTA, 2006). This method accounts for excess attenuation from "topography and ground effects." In our opinion, this 2-dB excess attenuation may not be realized where construction noise travels over hard ground with minimal vegetation or over water, the River, or where the noise source is rather tall, such as a pile-driving rig. Further explanation is provided below.

The nominal attenuation rate for fixed noise sources is 6 dB per doubling of distance. The FEIR/S calculations assume that construction activity noise would be attenuated by 8 dB per doubling of distance. The additional 2 dB attenuation relates to the FEIR/S assumption that noise is propagated over "'soft' (i.e., acoustically absorptive)" ground. Over short distances, this assumption of excess attenuation would have little effect. But over longer distances, the assumption has a significant effect on the predicted noise levels. For example, the Clarksburg Marina is located approximately 1,800 feet away from certain construction areas. A summary of estimated noise levels using the two different noise attenuation rates is provided in the table below.

Table 1: Noise Attenuation Study Clarksburg Marina	**Typical Construction (See FEIR/S Table 23-59)**	**Pile Driving (See FEIR/S Table 23-60)**
Source Noise Level (at 50 feet)	96	102
FEIR/S Predicted Noise Level at 1,800 feet (**8 dB** per doubling of distance attenuation)	55	61
Estimated Noise Level at 1,800 feet with **6 dB** per doubling of distance attenuation	65	71
Difference	**+10 dB**	**+10 dB**

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The actual noise levels during construction could also vary from those predicted in the FEIR/S (and those listed in Table 1) by 4 dB or more. The Caltrans guidance manual for the assessment of construction noise effects on bats lists an estimated range of noise from impact pile drivers up to 106 dBA at 50 feet[1] (as compared to the FEIR/S assumption of 102 dB). This is further supported by information published by the EPA.[2] In addition, information published in association with the FEIR/S states that up to 4 pile drivers could be in concurrent use at each "feature" or facility/intake with up to 90,000 pile strikes per day at each facility. Over a 12 to 15-hour work day, that would result in over 100 pile strikes per minute, and perhaps several per second. Pile strikes will certainly occur in rapid succession, sometimes simultaneously, resulting in a cumulative increase in noise levels by another 3 dB to 5 dB. Across the entire project site, we understand that one to two dozen or more pile drivers could be in concurrent operation. Thus, across the project site, pile impacts could occur 300 to 600 times per minute, or 5 to 10 per second. The FEIR/S does not appear to address these conditions.

In summary, it is very likely that the FEIR/S predicted construction noise levels are underestimated in areas where the assumption of excess noise attenuation due to terrain shielding and ground absorption may not be realized. As cumulative noise varies, noise levels could also be further increased. The above table and considerations demonstrate that the noise levels could be underestimated by approximately 10 dB to 15 dB or more, which is significant. The FEIR/S noise predictions may not be realistic for those conditions described above. A more appropriate, detailed, and site-specific noise analysis should take these factors into account to avoid underestimating construction noise levels at noise-sensitive receptors.

No Evidence is Provided to Support the Efficacy of Mitigation Measure NOI-1a

Mitigation Measure NOI-1a is offered in the EIR to address predicted significant construction noise impacts. However, the EIR only lists certain "best practices." However, the FEIR/S provides no information to demonstrate that the proposed measures would in fact reduce long-term construction noise to a less-than-significant level.

In particular, the FEIR/S should describe how mitigating noise barriers can feasibly be constructed in situations where the noise sources are rather tall (e.g., pile drivers) or located on the water front and the receptors are located along the opposite side of the river. An appropriate noise impact analysis would delve into this issue, which is reasonable to study, rather than only relying on future noise complaints to trigger the implementation of appropriate noise mitigation measures. If complaints occur, construction noise is found to be excessive, and mitigation measures are found to be infeasible, the noise sensitive community, including residences and recreational facilities, would have very few options available to redress the objectionable noise. An appropriate evaluation of the mitigation measures should be performed now, not after complaints occur. Therefore, the impact and mitigation measure analysis is incomplete.

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[1] See the Caltrans *Technical Guidance for the Assessment and Mitigation of the Effects of Traffic Noise and Road Construction on Bats* (July 2016), Table 5, Page 10.

[2] See the U.S. Environmental Protection Agency document titled *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (December 1971), Figure 1, Page 11.

The exploration of noise mitigation options also seems limited. For example, minimum setbacks for such noisy construction activities could be determined based on a more detailed analysis of the project noise. Alternative and quieter construction methods could be implemented, as needed, within those setbacks.

In addition, the proposed mitigation measures certainly do not address the predicted ambient noise increases of 20 dB or more (i.e., 40 dBA assumed ambient noise level increasing to 60 dBA or louder). Effective and feasible construction noise mitigation measures should be developed and sufficient information should be provided for public review to reasonably demonstrate that construction noise impacts can, in fact, be adequately reduced.

Long-Term Construction Noise is Expected to Interfere with Recreational Facilities

In the example described above (see the Table 1), at the Clarksburg Marina, construction noise levels of 65 dBA to 71 dBA would be expected to significantly interfere with recreational activities and enjoyment of the facilities. In particular, typical face-to-face conversation voice levels are approximately 60 dBA. Thus, intruding construction noise at such elevated levels would be expected to interfere considerably with speech communication, requiring people to raise their voices. Interference with such a basic activity as speech is likely to have a significant impact on the community's use and enjoyment of the facility.

A similar analysis could be performed to address receptors in Hood, such as the Hood Supply Company, a local restaurant (see Tables 2 and 3 below). The Restaurant is located approximately 1,200 feet away from a potential intake construction site and approximately 500 feet away from a heavy equipment construction yard.

Table 2: Noise Attenuation Study Hood Supply Company	**Pile Driving (See FEIR/S Table 23-60)**
Source Noise Level (at 50 feet)	102
FEIR/S Predicted Noise Level at 1,200 feet (**8 dB** per doubling of distance attenuation)	66
Estimated Noise Level at 1,200 feet with **6 dB** per doubling of distance attenuation	74
Difference	**+8 dB**

Table 3: Noise Attenuation Study Hood Supply Company	**Typical Construction (See FEIR/S Table 23-59)**
Source Noise Level (at 50 feet)	96
FEIR/S Predicted Noise Level at 500 feet (**8 dB** per doubling of distance attenuation)	70
Estimated Noise Level at 500 feet with **6 dB** per doubling of distance attenuation	76
Difference	**+6 dB**

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Based on Tables 2 and 3 above, we estimate that noise from simultaneous pile driving and typical construction activities could reach 78 dBA (i.e., sum of 74 dBA and 76 dBA) at the Hood Supply Company. Such long-term construction noise levels would certainly be expected to have a significant impact on the use of such a facility. Outdoors, construction noise would have a considerable impact on speech communication. Construction noise transmitted indoors might be between 55 dBA and 65 dBA, which would also impact typical face-to-face speech communication. With variation in pile driving noise levels and concurrent operation, these noise levels could be even higher – by 5 dB or more (see discussion of underestimation above).

Such examples of noise impact at noise sensitive recreation areas should be specifically addressed in the project EIR and appropriate noise mitigation developed to address the expected adverse effect on such noise-sensitive community facilities.

* * *

This concludes our comments. Should you have any questions please call.

Sincerely,

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REF #	TYPE	PROPOSED PERFORMANCE MEASURES AMENDMENT TO THE DELTA PLAN
3.9	Outcome	A decrease in Delta exports during below normal, dry, and critically dry years, and an increase in Delta exports during wet years, with average decrease in Delta exports[2]. (Strategy 3.3) **Metric:** · Total water exported by the State Water Project and the Central Valley Project, during each below normal, dry, and critically dry year, through the Harvey O. Banks and C.W. Bill Jones Pumping Plants in the southern Delta. This will be evaluated following each below normal, dry, and critically dry years. · Total water exported each wet year by the State Water Project and the Central Valley Project, through the Harvey O. Banks and C.W. Bill Jones Pumping Plants in the southern Delta. This will be evaluated following each wet ~~years~~. · Fifteen-year average total water exported annually (for all water year types) by the State Water Project and the Central Valley Project, through the Harvey O. Banks and C.W. Bill Jones Pumping Plants in the southern Delta. This will be evaluated at least every ~~five~~ three -years. **Baseline:** · Median total water exported during below normal, dry, and critically dry years by the State Water Project and the Central Valley Project, through the Harvey O. Banks and C.W. Bill Jones Pumping Plants in the southern Delta, for the years 1975–2014. Median total water exported during wet years by the State Water Project and the Central Valley Project, through the Harvey O. Banks and C.W. Bill Jones Pumping Plants in the southern Delta, for the years 1975–2014. Average total water exported annually (for all water year types) by the State Water Project and the Central Valley Project, through the Harvey O. Banks and C.W. Bill Jones Pumping Plants in the southern Delta, for the years 2000–2014. **Target:** A 5% decrease in annual total exports during below normal, dry, and critically dry years as compared to historical deliveries for below normal, dry, and critically dry years in 1975–2014. This target is to be achieved by 2030. A 10% decrease in monthly exports during below normal, dry, and critically dry years during the months of July through September. This target is to be achieved by 2030· A statistically significant increase in total exports during wet years compared to historical deliveries for wet years in 1975–2014. This target is to be achieved by 2030. · ~~Fifteen~~ Ten-year average total exports during all year types decreases by ~~5~~ 20 percent or more from the average historical deliveries for the years 2000–2014 (5.1 million acre-feet (MAF)). This target is to be achieved by ~~2030~~ 2040.

[2] This performance measure will be re-evaluated for consistency with the State Water Resources Control Board's updates to the 2006 Bay-Delta Water Quality Control Plan. Phase I and II updates are currently expected to undergo review and adoption in late 2017 or early 2018 (see: http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/).

REF #	TYPE	PROPOSED PERFORMANCE MEASURES AMENDMENT TO THE DELTA PLAN
4.2	Outcome	Restoring to a healthier estuary using more natural functional flows—including in-Delta flows[3] and tributary-input flow—to support ecological floodplain processes (e.g., spring peak flows along the Sacramento River, and more gradual recession flows at the end of the wet season). (Strategy 4.1) **Metrics:** • Area and duration of inundation in the Yolo Bypass, evaluated annually on a five-year rolling basis. • Frequency of two-year return interval peak flows, between November 1 to April 30, evaluated annually on a five-year rolling basis. • Rate of change in the hydrograph on the receding limb as measured from spring high flows to summer low flows, evaluated annually on a five-year rolling basis[4]. • 10-year rolling average slope of the Delta outflow-inflow ratio, disaggregated by seasonal, annual, and 10-year periods and evaluated annually; outflow-inflow ratio in dry and critically dry years, evaluated annually on a five-year rolling basis.

Metric: Average daily flows in the central Delta during July-September as measured at stations MOK (Mokelumne River at San Joaquin River) and LPS (Little Potato Slough at Terminous) or other appropriate stations.

[3] Please see Chapter 6 *Water Quality* performance measure on salinity in-Delta flows for X2.
[4] For this performance measure, the focal period is from April 1 to July 31, but the start of spring flows will differ depending on water-year type and water-management actions. The definition of spring high flows, or the start of spring recession, is defined as the third consecutive day of decreasing flow following the last peak flow between March 15 and June 1. Low flows are defined as the date when the daily recession rate average, over five days, is less than 3.5 percent per day.

REF #	TYPE	PROPOSED PERFORMANCE MEASURES AMENDMENT TO THE DELTA PLAN
4.2 (contd.)	Outcome (contd.)	**Baseline:** • Modeling, for the years 1997–2012, estimates that events with a 14-day duration inundated 45,100 acres in 33 percent of years; 19,700 acres in 50 percent of years; and 16,400 acres in 67 percent of years. Events with a duration of at least 21 days are estimated to have covered 36,300 acres in 33 percent of years; 15,800 acres in 50 percent of years; and 10,000 acres in 67 percent of years, between November 1 and May 30 (DWR 2015)[5]. • Hydrograph data for the Bend Bridge gage station (USGS gage 11377100) indicate that the magnitude of flow for pre-Shasta Dam (1891–1943) and post-Shasta Dam (1960–2013) events, with 14-day duration, are similar (approximately 20,000 cubic feet per second, CFS)[6]. However, the pre-Shasta Dam historical 1.5-year recurrence interval peak flow (approximately 75,000 CFS) even now occurs approximately every two years, and the pre-Shasta Dam 10-year recurrence interval flow (206,200 CFS) has been nearly halved (133,842 CFS)[7]. • Long-term hydrograph data from the U.S. Geological Survey gage station at Hamilton City (USGS 11383800). • Long-term ratio of Delta outflow to Delta inflow. The period before construction of the Central Valley Project, State Water Project, and select major dams (hydrograph between 1931 – 1954) had a Delta outflow-inflow ratio of 0.88. Post-completion of most components of the State Water Project (hydrograph between 1981–2015), the Delta outflow-inflow ratio was 0.75[8]. **Target:** • By 2030, allow for at least 17,000 acres of inundation for at least 14 days in two out of three years, and at least 21 days in one out of two years, between November 1 and March 15[9]. • By 2030, at least one peak flow greater than 75,000 CFS, lasting at least 48 hours in duration, every two years[10]. • By 2030, daily decrease in flow will be less than 3.5 percent per day, as calculated by a five-day rolling average during the period of spring flow recession, in at least 1 out of 5 years[11]. • By 2030, 10-year rolling average slope of Delta outflow-inflow ratio is greater than zero (i.e., positive), and annual average Delta outflow-inflow ratio in dry and critically dry years is greater than 0.5[12].

Baseline for central Delta flow monitoring: mean daily flow for the years 1975–2014.
Target for central Delta flow: By 2030 at least 15% increase in mean daily flow for the months July–September

[5] This baseline reflects the existing Fremont Weir configuration as of 2017.
[6] DWR 2016, Central Valley Flood Protection Plan Conservation Strategy, Appendix H, Tables 3-1 and 4-1. Shasta Dam was completed in 1943. The dates here coincide with dates used in the Central Valley Flood Protection Plan, and are illustrative of the pre- and post-Shasta periods.
[7] Michalkova et al. 2011, Constantine 2006, and Micheli et al. 2011.
[8] Delta Inflow and Net Delta Outflow Index estimates for the period of 1929–1955 can be retrieved from DWR: http://www.water.ca.gov/dayflow/
[9] This performance measure may be refined to ensure consistency with the State Water Resources Control Board update of the Bay-Delta Water Quality Control Plan.
[10] This performance measure may be refined to ensure consistency with the State Water Resource Control Board update of the Bay-Delta Water Quality Control Plan.
[11] Target recession rate informed by research and analyses conducted for the Environmental Flows Tool (Alexander et al. 2014) and Stillwater Sciences (2007).
[12] Following the State Water Resources Control Board's completion of updates to the Bay-Delta Water Quality Control Plan, this performance measure will be reevaluated for consistency with the Board's regulations.